

A HOST INDEX OF SOME ARIZONA FLEAS<sup>1</sup>

(Siphonaptera)

LAWRENCE PAUL WEHRLE<sup>2</sup>*University of Arizona, Tucson*

In Dr. C. A. Hubbard's "Fleas of Western North America," published in 1947, are listed 42 species of fleas recorded from Arizona. These records are augmented by the following host index of 23 species and subspecies of fleas included in a collection assembled by the author at the University of Arizona. Most specimens are from Tucson and from nearby mountains in Pima County, although some fleas were collected in other parts of Arizona. One Mexican record is included. The first four species listed are common pests not native to the state; the last 19 are native to Arizona.

The scientific names of the fleas in the following list are preceded by the corresponding reference numbers used by Hubbard in his "Fleas of Western North America," except for one subspecies described since the appearance of that work in 1947.

1. *Echidnophaga gallinacea* (Westwood), 1875, commonly called the tropical hen flea. This introduced fowl flea is now at home on many wild birds and animals. It is here reported off:

*Bubo v. pallescens* (horned owl). Tucson, Dec. 30, 1933; Tortillita Mts., Nov. 25, 1938.

*Cryptoglaux acadica* (saw-whet owl), Tucson, Jan. 27, 1940.

*Sitta c. nelsoni* (Rocky Mt. nuthatch), Ft. Lowell, Dec. 17, 1939.

*Cassidix mexicanus* (great-tailed grackle), Chihuahua, Mexico, April 26, 1940.

*Geococcyx californianus* (road runner), Tucson, Jan. 25, 1939.

*Colaptes c. collaris* (red-shafted flicker), Tucson, Jan. 28, 1939.

*Neotoma albigula* (pack rat), Tucson, April 1930, Dec. 29, 1930, Jan. 1, 1931, May 23, 1933, Sept. 28, 1939.

*Citellus harrisi* (Harris ground squirrel), Tucson, March 28, 1927, March 13, 1938.

*Citellus g. grammurus* (Colorado rock squirrel), Tucson, March 25, 1938.

*Citellus tereticaudus* (round-tailed ground squirrel), Tucson, March 28, 1929.

<sup>1</sup>The author wishes to thank Dr. C. A. Hubbard of Vanport College, Portland, Oregon, internationally known student of western fleas, who determined the fleas listed herewith and aided in the preparation of the manuscript.

<sup>2</sup>Died October 23, 1950.

*Dipodomys sp.* (kangaroo rat), Tucson, 1932.

*Sylvilagus a. arizonae* (Arizona cottontail), Pinal Mts., Gila, Co., 1932; Tucson, April 8, 1938.

*Taxidea t. berlandieri* (badger), Rincon Mts., March 30, 1933.

*Bassariscus a. flavus* (ring-tailed cat), Tucson, Aug. 23, 1933. This flea was taken in and under a house at Tucson, June 4, 1932.

4. *Pulex irritans* Linnaeus, 1758, the human flea, is a barnyard and city pest widely spread in North America. It is reported off:

*Urocyon c. scotti* (gray fox), Santa Rita Mts., Feb. 12, 1932, Feb. 21, 1933; Huachuca Mts., Cochise Co., Jan. 11, 1935.

*Canis mearnsi* (Mearns' coyote), Tucson, April 2, 1938.

*Canis familiaris* (dog), Tucson, March 31, 1930, June 4, 1932, March 26, 1940.

*Lynx baileyi* (bobcat), Sierrita Mts., Dec. 13, 1942.

*Taxidea t. berlandieri* (badger), Rincon Mts., March 30, 1933.

*Bassariscus a. flavus* (ring-tailed cat), Tucson, Aug. 23, 1933.

*Mephites estor* (skunk), Tucson, Jan. 12, 1931; Pinal Mts., Gila Co., Oct. 12, 1931.

*Lepus c. eremicus* (jackrabbit), Santa Rita Mts., April 19, 1932.

*Citellus g. grammurus* (Colorado rock squirrel), Tucson, March 25, 1938.

*Dipodomys sp.* (kangaroo rat), Tucson, 1932.

*Vulpes m. neomexicana* (New Mexico desert fox), Tucson, Dec. 27, 1937. This flea was taken at Tucson in and under a house June 3, 4, 1932; in a greenhouse June 11, 1940; in an auditorium May 13, 22, 1940.

6. *Ctenocephalides felis* (Bouche) 1835, the common cat flea, becomes a house and yard pest during the summer months. It is reported off:

*Bubo v. pallescens* (horned owl), Tucson, Dec. 30, 1933.

*Felis domesticus* (house cat), Tucson, Oct. 17, 1931, June 14 and Aug. 29, 1932, May 16, 1934, April 18, 1937, April 13, 1940.

*Canis familiaris* (dog), Tucson, Feb. 3, 1940. This flea was taken at Tucson in a house basement Aug. 31, 1942, and in a house yard April 13, 1940 and Sept. 20, 1941.

7. *Ctenocephalides canis* (Curtis) 1826, the common dog flea, seems less common than the cat flea. It is reported off:

*Canis familiaris* (dog) Tucson, March 1934, Sept. 10, 1938, March 1940. This flea was taken in a house at Wickenburg, Maricopa Co., May 16, 1946.

13. *Hoplopsyllus affinis* (Baker) 1904, is the small common rabbit flea of Arizona which does not bear genal teeth. It is reported off:

*Lepus c. eremicus* (Jack rabbit), Santa Rita Mts., Tucson, April 21, 1931.

- Sylvilagus nuttalli* (cotton-tail), Pinal Mts., Gila Co., 1932; Alpine, Apache Co., March 7, 1935; White Mts., Apache Co., Oct. 26, 1934; Santa Rita Mts., March 31, 1943.
14. *Hoplopsyllus anomalus* (Baker) 1904, is a widely-spread southwest ground squirrel flea. It is here reported off:  
*Citellus g. grammurus* (Colorado rock squirrel), Tucson, March 25, 1938; Rincon Mts., April 3, 1938.
15. *Cediopsylla inaequalis inaequalis* (Baker) 1895, is the small wild rabbit flea of the southwest which has black genal teeth. It is reported off:  
*Sylvilagus nuttalli* (cotton-tail), Pinal Mts., Gila Co., 1932; White Mts., Apache Co., Oct. 26, 1934.
17. *Anomiopsyllus nudatus* (Baker) 1898, one of the more common of the southwest wood rat fleas. It is reported off:  
*Neotoma albigula* (pack rat), Santa Rita Mts., April and May 1930, March 6, 1933, June 27, 1936.  
*Neotoma m. bullata* (wood rat), Santa Catalina Mts., June 5, 1934.  
*Sigmodon hispidus* (cotton rat), Santa Rita Mts., March 22, 1932.
29. *Orchopeas sexdentatus schisintus* (Jordan) 1929, a common wood rat flea of Arizona south of the Grand Canyon, is reported off:  
*Neotoma albigula* (pack rat), Tucson, May 23, 1933, Jan. 15, 1935, Feb. 4, 18, April 1, 1938, March 6, April 10, 1940.  
*Sigmodon hispidus* (cotton rat), Tucson, April 10, 1940.
30. *Orchopeas sexdentatus neotomae* (Auguston) 1943 is also a flea of common occurrence in Arizona south of the Grand Canyon. It is reported off:  
*Neotoma m. bullata* (wood rat), Santa Catalina Mts., June 5, 9, July 13, 1934.  
*Neotoma albigula* (pack rat), Santa Catalina Mts., Jan. 15, 1935.
38. *Orchopeas howardi* (Baker) 1895, is an eastern tree squirrel flea reported off:  
*Sciurus a. huachuca* (tree squirrel), Santa Rita Mts., Feb. 22, 1932.
46. *Opisodasys robustus* (Jordan) 1925, is a southwestern flea found on true tree squirrels. It is reported off:  
*Sciurus a. catalina* (Catalina gray squirrel), Santa Catalina Mts., Oct. 22, 1938.
60. *Thrassis a. arizonensis* (Baker) 1898; is a common ground squirrel flea of the southwest. It is reported off:  
*Citellus harrisi* (Harris ground squirrel), Tucson, March 28, 1927, Feb. 20, 1934, Feb. 11, 1937, Feb. 4, March 13, 1938, March 13, 1940; Santa Rita Mts., May 10, 1932.  
*Citellus tereticaudus* (round-tailed ground squirrel), Tucson, March 28, 1929, Feb. 4, March 15, 1938, March 13, April 13, 1940, March

- 14, 21, April 27, 1942; Santa Rita Mts., April 7, 1930, Feb. 29, March 14, 1932.
- Sylvilagus a. arizonae* (Arizona cotton-tail), Tucson, April 8, 1938, March 6, 1939.
- Sigmodon hispidis* (cotton rat), Tucson, March 6, 1940.
63. *Thrassis pansus* (Jordan) 1925 is reported off:  
*Citellus g. grammurus* (Colorado rock squirrel), Rincon Mts., April 3, 1938.  
*Citellus harrisi* (Harris ground squirrel), Tucson, Feb. 4, 25, 1938.
64. *Thrassis setosis* (Prince) 1944 has been taken off:  
*Citellus harrisi* (Harris ground squirrel), Tucson, March 28, 1927, Feb. 11, 1937.  
*Citellus tereticaudus* (round-tailed ground squirrel), Tucson, March 14, 1942.  
*Citellus leucurus* (antelope ground squirrel), Navajo Mts., June 13, 1933.
69. *Diamanus montanus* (Baker) 1895, a very common western ground squirrel flea is reported off:  
*Citellus g. grammurus* (Colorado rock squirrel), Tucson, March 25, 1938; Rincon Mts., April 3, 1938.  
*Citellus tereticaudus* (round-tailed ground squirrel), Tucson, April 22, 1938.
76. *Opisocrostitis hirsutus* (Baker) 1895, the southwest prairie dog flea, is reported off:  
*Cynomys gunnisoni* (Prairie dog), Red Lake, Coconino Co., June 13, 1933.
- 89a. *Foxella ignota omissa* (Prince) 1945 has been taken off:  
*Thomomys* sp. (pocket gopher), no locality mentioned, May 1913.
- (—). *Monopsyllus wagneri kylei* (Hubbard) 1949 is reported by the describer as being the southern variation of this northern species. It has been taken off:  
*Peromyscus m. sonoriensis* (deer mouse), Santa Catalina Mts., June 28, 1934.
133. *Ceratophyllus celsus* (Jordan) 1926 is reported off:  
*Sitta p. melanotis* (black-eared nuthatch), Flagstaff, Sept. 1, 1934.
150. *Odontopsyllus dentatus* (Baker) 1904 is a common large rabbit flea found everywhere through the Rocky Mountains and west to the Pacific Ocean. It is a true rabbit flea but can also be found on the carnivores which feed on rabbits. It is here reported off:  
*Lynx rufus* (bobcat), Tucson, Feb. 18, 1939.
181. *Stenistomera alpina* (Baker) 1895 is another of the Rocky Mountain and southwestern wood rat fleas. It is here reported off:

*Neotoma m. pinetorum* (wood rat), White Mts., Apache Co., Oct. 26, 1934.

232. *Myodopsylla collinsi* (Kohls) 1937 was described from the Santa Rita Mountains, south of Tucson, off cave bat. It is here reported off:

*Myotis v. velifer* (cave bat), Tucson Mts., April 2, 20, 1938.

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## SEXUAL DIMORPHISM AND SYNONYMY IN ANTHONOMUS (ANTHONOMORPHUS)

(Coleoptera: Curculionidae)

EDWARD E. GILBERT

*University of California, Berkeley*

The subgenus *Anthonomorphus* was proposed by Dietz<sup>1</sup> and *Anthonomus fulvus* LeConte was designated as the type. Two additional species were described in this same work, *A. peninsularis*, from a male specimen, and *A. pervilis*, from a female specimen, both from Lower California (Ulke Collection). A distinguishing feature of these two "species" was said to be the "strikingly different coloration," *A. peninsularis* being pitch black, *A. pervilis* ferruginous. In addition, the head in the latter "species" was described as not constricted behind the eyes and a transverse indentation was stated to be present above the eyes. These distinctions are misleading, and the use of these characters has led to a confusion in identification. The males of this group are black, and the eyes are large and bulbous with their posterior margin meeting the head at a slight constriction. These features give the eyes a more prominent appearance and accentuate the constriction of the head. The females are ferruginous and the eyes are smaller and only slightly convex, not attaining the constriction of the head. This character provides the impression that there is no constriction immediately behind the eyes, but merely a transverse indentation some distance above the eyes. However, an occasional male intergrade is found. Since these characters represent sexual dimorphism and since *A. peninsularis* has line precedence, it is proposed that *A. pervilis* be regarded as a synonym of *A. peninsularis*.

In California, *A. peninsularis* has been found east of the Sierra Nevada Mountains in Inyo County, and at Piñon Flat, in the Santa Rosa Mountains, Riverside County. The only host recorded has been furnished by Dr. E. C. Linsley, who found this species on *Sphaeralcea ambigua* at Piñon Flat.

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<sup>1</sup> Dietz, W. G. 1891. Revision of the genera and species of Anthonomini inhabiting North America. Trans. Am. Ent. Soc., vol. 18, pp. 177-276.